

Find the unknown side lengths in each special right triangle.

1. A 30° - 60° - 90° triangle with hypotenuse 2 ft.

2. A 45° - 45° - 90° triangle with leg length 4 in.

3. A 30° - 60° - 90° triangle with longer leg length 3m

- Develop and apply the formulas for the area and circumference of a circle.
- Develop and apply the formula for the area of a regular polygon.

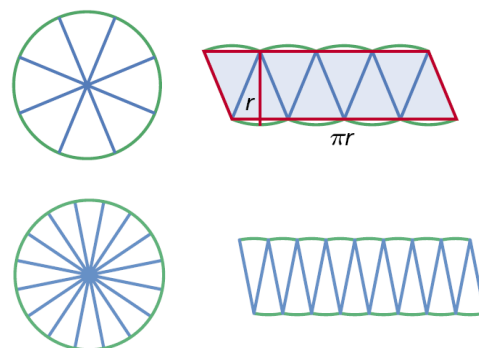
Common Core: CC.9-12.G.GMD.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.

4. What is a circle?

5. What is π ?

6. What is the formula for the circumference of a circle?

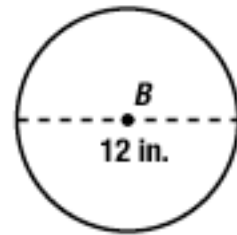
You can use the circumference of a circle to find its area. Divide the circle and rearrange the pieces to make a shape that resembles a parallelogram.



7. What is the formula for the area of a circle?

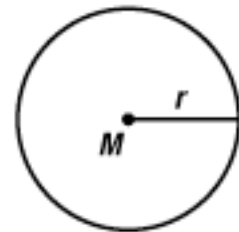
Example 1

A) Find the area of $\odot B$ in terms of π .



B) Find the radius of $\odot Y$ in which $C = 32\pi$ cm.

C) Find the circumference of $\odot M$ if the area is $A = 4x^2\pi m^2$



8. **Guided Practice:** Find the area of $\odot A$ in terms of π in which $C = (4x - 6)\pi m$.

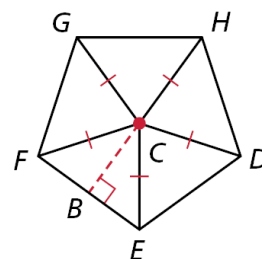
Helpful Hint

The π key gives the best possible approximation for π on your calculator. Always wait until the last step to round.

9. What is a regular polygon?

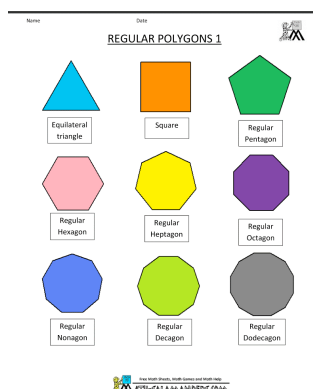
10. What is the center of the regular polygon?

11. Compare and contrast the apothem and radius of a regular polygon.



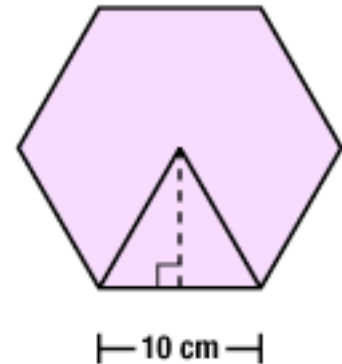
12. How do you find the central angle of a regular polygon?

13. How do you find the area of a regular polygon?



Example 3

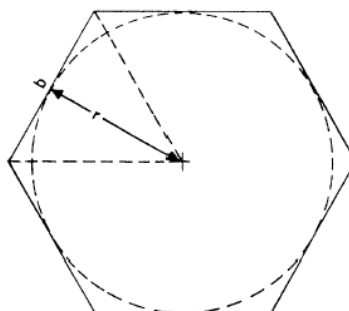
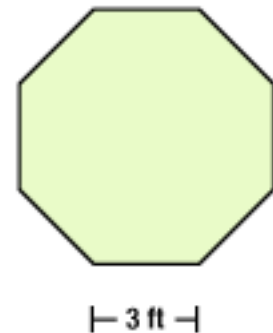
A) Find the area of polygon.



Remember!

The tangent of an angle in a right triangle is the ratio of the opposite leg length to the adjacent leg length. See page 525.

B) Find the area of polygon.



14. Guided Practice: Find the area of a regular octagon with a side length of 4 cm.

10.2 Assignment: (pp 691-93) 10, 13, 14, 22, 26, 30, 31, 33, 35, 38, 39, 41-44.

